

CLAIMS

1. An optical disk device comprising:

optical means for extracting information stored on a disk;

control means for controlling said optical means;

signal process means for optimally converting a regenerated signal extracted by said optical means into a binary signal; and

reference clock generation means for generating a reference clock substantially equal to a basic transfer speed of the regenerated signal from a fixed clock;

said reference clock generation means comprising:

a first divider for dividing the fixed clock;

a second divider for dividing the reference clock;

a phase comparator for detecting a phase error between a division clock output by said first divider and a division clock output by said second divider;

a voltage/current control oscillator for oscillation at a frequency depending on the phase error output by said phase comparator; and

setting means for setting a central oscillation frequency or a gain of said voltage/current control oscillator;

whereby characteristics of said signal process means are optimally varied according to an oscillation frequency of said voltage/current control oscillator.

2. The optical disk device according to claim 1 wherein said signal process means comprises an automatic gain control circuit for controlling an amplitude of a regenerated signal to be constant, so that response characteristics of said automatic gain control circuit are controlled according to the oscillation frequency of said voltage/current control oscillator.

3. The optical disk device according to claim 1 wherein said signal process means comprises a waveform equalization circuit for removing a regenerated signal out-of-band element and equalizing a waveform, so that a signal removal band and waveform equalization characteristics of said waveform equalization circuit are varied according to the oscillation frequency of said voltage/current control oscillator.

4. The optical disk device according to claim 1 wherein said signal process means comprises a binarization circuit for converting a regenerated signal into binary data, so that response characteristics of said binarization circuit are varied according to the oscillation frequency of said binary data circuit.

5. The optical disk device according to claim 1 wherein said signal process means comprises a mono-multi vibrator for generating a one-shot pulse having a predetermined width from an edge of a binary signal output by a binarization circuit,

so that the pulse width of the one-shot pulse is controlled according to the oscillation frequency of said voltage/current control oscillator.

6. An optical disk device comprising:

optical means for extracting information stored on a disk;

control means for controlling said optical means;

signal process means for optimally converting a regenerated signal extracted by said optical means into a binary signal;

reference clock generation means for generating a reference clock substantially equal to a basic transfer speed of the regenerated signal from a fixed clock; and

data clock extraction means for extracting a clock element from binary data of the regenerated signal;

said reference clock generation means comprising:

a first divider for dividing the fixed clock;

a second divider for dividing the reference clock;

a first phase comparator for detecting a phase error between a division clock output by said first divider and a division clock output by said second divider;

a first voltage/current control oscillator oscillating at a frequency depending on the phase error output by said first phase comparator; and

central frequency setting means for setting a
central oscillation frequency of said first
voltage/current control oscillator;
said data clock extraction means comprising:

a second phase comparator for detecting a phase
error between the regenerated binary data and a data
clock; and

a second voltage/current control oscillator
oscillating at a frequency depending on the phase error
output by said second phase comparator;

whereby characteristics of said first voltage/current control
oscillator are set equal or similar to the characteristics of
said second voltage/current control oscillator, and the
oscillation frequency of said first voltage/current control
oscillator is referred to by said second voltage/current
control oscillator.

7. An optical disk device comprising:

optical means for extracting information stored on a
disk;

control means for controlling said optical means;

signal process means for optimally converting a
regenerated signal extracted by said optical means into a
binary signal;

reference clock generation means for generating a
reference clock substantially equal to a basic transfer speed
of the regenerated signal from a fixed clock; and

data clock extraction means for extracting a clock element from binary data of the regenerated signal;

said reference clock generation means comprising:

a first divider for dividing the fixed clock;

a second divider for dividing the reference clock;

a phase comparator for detecting a phase error between a division clock output by said first divider and a division clock output by said second divider;

a first voltage/current control oscillator oscillation at a frequency depending on the phase error output by said phase comparator; and

setting means for setting a central oscillation frequency or a gain of said first voltage/current control oscillator;

said data clock extraction means comprising:

a second voltage/current control oscillator having at least characteristics equal to characteristics of said first voltage/current control oscillator; and

synchronization detection means for detecting a synchronization state of said data clock extraction means;

whereby characteristics of said signal process means can be optimally varied based on a detection state of said synchronization detection means.

8. The optical disk device according to claim 7 wherein

said signal process means comprises an automatic gain control circuit for controlling an amplitude of the regenerated signal to be constant, so that response characteristics of said automatic gain control circuit are controlled according to an oscillation frequency of said first voltage/current control oscillator.

9. The optical disk device according to claim 7 wherein said signal process means comprises a waveform equalization circuit for removing the regenerated signal out-of-band element and equalizing a waveform, so that a signal removal band and waveform equalization characteristics of said waveform equalization circuit are varied according to an oscillation frequency of the first voltage/current control oscillator in said reference clock generation means or of the second voltage/current control oscillator in said data clock extraction means.

10. The optical disk device according to claim 7 wherein said signal process means comprises a binarization circuit for converting a regenerated signal into binary data, so that response characteristics of said binarization circuit is varied according to an oscillation frequency of the first voltage/current control oscillator in said reference clock generation means or of the second voltage/current control oscillator in said data clock extraction means.

11. The optical disk device according to claim 7 wherein said signal process means comprises a mono-multi vibrator for generating a one-shot pulse having a predetermined width from an edge of a binary signal output by the binarization circuit, so that a pulse width of said one-shot pulse is controlled according to an oscillation frequency of the first voltage/current control oscillator in said reference clock generation means or of the second voltage/current control oscillator in said data clock extraction means.

12. An optical disk device comprising:

reference clock generation means for generating a reference clock substantially equal to a basic transfer speed of the regenerated signal from a predetermined fixed clock;

said reference clock generation means comprising:

a first divider for dividing the fixed clock;

a second divider for dividing the reference clock;

a phase comparator for detecting a phase error between a division clock output by said first divider and a division clock output by said second divider;

a charge pump for converting the phase error detected by said phase comparator into a voltage or an amount of electric current; and

a voltage/current control oscillator for oscillation at a frequency depending on the phase error output by said phase comparator;

13. The optical disk device according to claim 12 wherein the gain of said reference clock generation means is varied based on an amount of voltage or electric current of said charge pump.

STATION	DATE	TIME	WIND	WAVE	SEA	TEMP	WIND	WAVE	SEA	TEMP
1	10/10/50	0800	10	2	3	18	10	2	3	18
2	10/10/50	1000	12	3	4	20	12	3	4	20
3	10/10/50	1200	15	4	5	22	15	4	5	22
4	10/10/50	1400	18	5	6	24	18	5	6	24
5	10/10/50	1600	20	6	7	26	20	6	7	26
6	10/10/50	1800	22	7	8	28	22	7	8	28
7	10/10/50	2000	25	8	9	30	25	8	9	30
8	10/10/50	2200	28	9	10	32	28	9	10	32
9	10/10/50	2400	30	10	11	34	30	10	11	34
10	10/10/50	2600	32	11	12	36	32	11	12	36
11	10/10/50	2800	35	12	13	38	35	12	13	38
12	10/10/50	3000	38	13	14	40	38	13	14	40
13	10/10/50	3200	40	14	15	42	40	14	15	42
14	10/10/50	3400	42	15	16	44	42	15	16	44
15	10/10/50	3600	45	16	17	46	45	16	17	46
16	10/10/50	3800	48	17	18	48	48	17	18	48
17	10/10/50	4000	50	18	19	50	50	18	19	50
18	10/10/50	4200	52	19	20	52	52	19	20	52
19	10/10/50	4400	55	20	21	54	55	20	21	54
20	10/10/50	4600	58	21	22	56	58	21	22	56
21	10/10/50	4800	60	22	23	58	60	22	23	58
22	10/10/50	5000	62	23	24	60	62	23	24	60
23	10/10/50	5200	65	24	25	62	65	24	25	62
24	10/10/50	5400	68	25	26	64	68	25	26	64
25	10/10/50	5600	70	26	27	66	70	26	27	66
26	10/10/50	5800	72	27	28	68	72	27	28	68
27	10/10/50	6000	75	28	29	70	75	28	29	70
28	10/10/50	6200	78	29	30	72	78	29	30	72
29	10/10/50	6400	80	30	31	74	80	30	31	74
30	10/10/50	6600	82	31	32	76	82	31	32	76
31	10/10/50	6800	85	32	33	78	85	32	33	78
32	10/10/50	7000	88	33	34	80	88	33	34	80
33	10/10/50	7200	90	34	35	82	90	34	35	82
34	10/10/50	7400	92	35	36	84	92	35	36	84
35	10/10/50	7600	95	36	37	86	95	36	37	86
36	10/10/50	7800	98	37	38	88	98	37	38	88
37	10/10/50	8000	100	38	39	90	100	38	39	90
38	10/10/50	8200	102	39	40	92	102	39	40	92
39	10/10/50	8400	105	40	41	94	105	40	41	94
40										